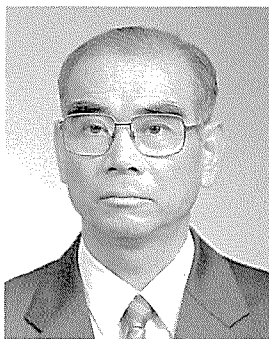


著作目録（平井正光）

著者	東北大学史料館
号	500
発行年	1993-03
URL	http://hdl.handle.net/10097/00065317

平 井 正 光 教 授 著 作 目 録

平成 5 年 3 月
東北大学記念資料室
(著作目録第 500 号)



平井正光教授略歴

生年月日	昭和4年9月17日生
本籍地	滋賀県
出生地	滋賀県

学歴

昭和28年3月	京都大学理学部物理学科卒業
昭和28年4月	京都大学大学院理学研究科物理学専攻修士課程進学
昭和30年3月	同上修了
昭和30年4月	京都大学大学院理学研究科物理学専攻博士課程進学
昭和30年9月	同上中途退学

学位

理学博士	昭和36年3月（京都大学）
------	---------------

受賞

毎日学術奨励賞	昭和30年11月3日 毎日新聞社
---------	------------------

職歴

昭和30年10月	東北大学助手 理学部
昭和36年12月	東北大学助教授 理学部
昭和37年9月	在外研究員として物理学に関する研究のため米国に出張（昭和39年8月まで）
昭和46年8月	物理学に関する研究のため英国に出張（昭和46年10月まで）
昭和49年10月	物理学に関する研究のため英国に出張（昭和49年12月まで）
昭和55年4月	物理学に関する研究のためフランスに出張（昭和55年7月まで）

昭和55年 8 月 東北大学教授 工学部
昭和59年 9 月 物理学に関する講義のため中国に出張（昭和59年10月まで）
平成 5 年 3 月 定年退職

学会ならびに社会における活動

昭和62. 10 日本物理学会1987年秋の分科会（仙台）実行委員長
昭和34 日本物理学会委員
昭和42 日本物理学会委員
1974. 8 第 8 回色中心国際会議（仙台）組織委員，事務局長
1987. 8 6th International Conference on Dynamical Processes in Excited States of Solids（筑波）国際会議組織委員
1988. 7 6th International Conference on Ultrafast Phenomena（比叡）国際会議組織委員

諮 問 委 員

1988. 8 International Conference on Defects in Insulating Crystals
（パルマ，イタリア）国際会議諮問委員
1992. 8 International Conference on Defects in Insulating Materials
（ノルドキルヘン，ドイツ）国際会議諮問委員

著 作 目 録

1. 分光光度計による真珠の色の測定
応用物理 **23** (1954) 469
内田洋一, 富来哲彦, 平井正光.
2. 分光光度計による真珠の色の測定 (2)
応用物理 **24** (1955) 325
内田洋一, 富来哲彦, 平井正光.
3. The Bleaching of Color Centers in KCl Crystals Containing U-Center.
J. Phys. Chem. Solids, **2** (1957) 83
M. Ueta and M. Hirai.
4. Interaction of Exciton with Electron Trapping Centers in Alkali Halide Crystals (1): F and U Centers in KCl and KBr Crystals,
J. Phys. Soc. Jpn., **14** (1959) 253
M. Ueta, M. Hirai and H. Watanabe.
5. Interaction of Exciton with R Center in KCl Crystal,
J. Phys. Soc. Jpn., **14** (1959) 546
M. Ueta and M. Hirai.
6. F-M Conversion in Additively Colored KCl Crystals,
J. Phys. Soc. Jpn., **14** (1959) 1400-1407
M. Hirai.
7. Interaction of Exciton with Electron Trapping Centers in Alkali Halide Crystals (2): Quantum Yield for the U-F Conversion and Its Dependence on U Center Concentration,
J. Phys. Soc. Jpn., **15** (1960) 953
M. Ueta, M. Hirai and H. Watanabe.
8. Thermal Bleaching of Color Centers in KCl Crystals Containing U Centers,
J. Phys. Soc. Jpn., **15** (1960) 1308-1315
M. Hirai.
9. Exciton-Induced Photoconductivity of U Centers in KCl Crystal,
J. Phys. Soc. Jpn., **15** (1960) 1356-1357
M. Ueta and M. Hirai.

10. Interaction of Exciton with Electron Trapping Centers in Alkali Halide Crystals (3): Exciton Induced Photo Conductivity of U Center,
J. Phys. Soc. Jpn., **16** (1961) 538-546
M. Ueta, M. Hirai and M. Ikezawa.
11. Temporary Bleaching of Color Centers in KCl Crystal,
J. Phys. Soc. Jpn., **16** (1961) 1477-1478
M. Hirai, M. Ikezawa and M. Ueta.
12. A New Absorption Band (L_4) associated with F Center,
J. Phys. Soc. Jpn., **17** (1962) 566
M. Hirai and M. Ueta.
13. F'-type New Bands Associated with R, M and N Centers in Alkali Halide Crystals,
J. Phys. Soc. Jpn., **17** (1962) 724
M. Hirai and M. Ueta.
14. Temporary Bleaching of Color Centers in KCl Crystal,
J. Phys. Soc. Jpn., **17** (1962) 1474-1482
M. Ikezawa, M. Hirai and M. Ueta.
15. F' Type New Absorption Bands Associated with Complex Centers in Alkali Halide Crystals,
J. Phys. Soc. Jpn., **17** (1962) 1483-1488
M. Hirai, M. Ikezawa and M. Ueta.
16. Luminescence of X-Rayed Alkali Halide Crystal Induced by Plastic Deformation,
J. Phys. Soc. Jpn., **17** (1962) 1668-1669
M. Ueta, M. Kojima and M. Hirai.
17. F'-Type New Absorption Bands in KCl and KBr Crystals,
J. Phys. Soc. Jpn., **18** (1963) 261-263
M. Hirai, M. Ikezawa and M. Ueta.
18. Electron Traps in Colored KCl at -30°C ,
J. Chem. Phys., **40** (1964) 2864-2867
M. Hirai and A. B. Scott.
19. M_4 Band in Colored KCl and KBr,
J. Chem. Phys., **42** (1965) 470-472
M. Hirai and A. B. Scott.

20. Thermal Growth of M Centers in KCl Crystals Additively Colored,
J. Phys. Soc. Jpn., **20** (1965) 2090
M. Hirai.
21. Luminescence Induced by L Band Light in KCl and KBr Crystals,
J. Phys. Soc. Jpn., **21** (1966) 826-827
M. Hirai and M. Ikezawa.
22. Electron Traps in Deformed Alkali Halide Crystals,
J. Chem. Phys., **44** (1966) 1753-1757
M. Hirai and A. B. Scott.
23. The Luminescence Induced by L Band Light in Potassium Halide Crystals
Containing F Centers,
J. Phys. Soc. Jpn., **22** (1967) 810-818
M. Hirai and M. Ikezawa.
24. Thermal Conversions of F-M in Additively Colored KCl Crystals,
J. Phys. Soc. Jpn., **22** (1967) 1005-1015
M. Hirai and T. Matsuyama.
25. Luminescence Spectra Induced by L_2 and L_3 Light in KCl Crystals Containing
F Centers,
J. Phys. Soc. Jpn., **22** (1967) 1504
M. Hirai and K. Hashizume.
26. The Luminescence Associated with Higher Excited States of the M Center in
KCl Crystals,
J. Phys. Soc. Jpn., **22** (1967) 1505
M. Hirai and K. Hashizume.
27. Thermal Properties of the M Center in KBr Crystals,
J. Phys. Soc. Jpn., **22** (1967) 1506
M. Hirai and T. Matsuyama.
28. Formation of M Centers from "Stored" Photoelectrons,
J. Chem. Phys., **46** (1967) 2896-2904
M. Hirai and A. B. Scott.
29. The M-Center Luminescence in KCl and KBr Crystals,
J. Phys. Soc. Jpn., **24** (1968) 1059-1074
M. Hirai and K. Hashizume.

30. Intrinsic Luminescence Induced by X-Ray in KBr-KCl Solid Solutions,
J. Phys. Soc. Jpn., **24** (1968) 1177
S. Wakita and M. Hirai.
31. F Center Formation in KCl Crystals by Pulsed Electron Beam at 80K,
J. Phys. Soc. Jpn., **26** (1969) 1000-1006
M. Ueta, Y. Kondo, M. Hirai and T. Yoshinari.
32. F Center Formation in KCl by a Pulsed Electron Beam at 10K,
J. Phys. Soc. Jpn., **26** (1969) 1553
Y. Kondo, M. Hirai, T. Yoshinari and M. Ueta.
33. Thermal Formation of F_2^+ Centers in KCl Crystals,
J. Phys. Soc. Jpn., **27** (1969) 1526-1534
T. Matsuyama and M. Hirai.
34. Statistical Study of M-Center Formation and Destruction in KCl Crystals,
J. Phys. Soc. Jpn., **28** (1970) 1240-1250
M. Hirai and T. Matsuyama.
35. Color Center Formation and Bleaching in KCl and NaCl by Electron Pulse at 15K,
J. Phys. Soc. Jpn., **30** (1971) 440-448
M. Hirai, Y. Kondo, T. Yoshinari and M. Ueta.
36. Color Center Formation in KCl: Ag Crystals under X-Raying near LHeT,
J. Phys. Soc. Jpn., **30** (1971) 1765
Y. Kondo and M. Hirai.
37. The Decay Time of Luminescence in EuSe
J. Phys. Soc. Jpn., **31** (1971) 1287
S. Wakita, T. Yamaguchi and M. Hirai.
38. The Yield of Color Center Formation in KBr Doped with KI,
Solid State Commun., **10** (1972) 493-495
M. Hirai.
39. Transient Formations of Color Centers in KBr Crystals under the Pulsed Electron Beam,
J. Phys. Soc. Jpn., **33** (1972) 151-157
Y. Kondo, M. Hirai and M. Ueta.

40. The Efficiency of F Center Formation in KCl between 10K and 80K,
J. Phys. Soc. Jpn., **33** (1972) 1728
T. Karasawa and M. Hirai.
41. Formation Yield of Self Trapped Excitons in NaCl between 10K and 130K,
J. Phys. Soc. Jpn., **34** (1973) 276
T. Karasawa and M. Hirai.
42. Phonon Structures in the Excitation Spectra of the Intrinsic Luminescence of
KI under Two Photon Excitation,
J. Phys. Soc. Jpn., **35** (1973) 942
T. Yoshinari and M. Hirai.
43. The Complex H Center in KCl-KI Crystals,
J. Phys. Soc. Jpn., **36** (1974) 1058-1064
T. Katsuyama, S. Wakita and M. Hirai.
44. Exciton-Phonon Coupling in KI and RbI under Two-Photon Excitation,
J. Phys. Soc. Jpn., **39** (1975) 720-725
T. Yoshinari and M. Hirai.
45. Color Center Formation in KI and NaCl Crystals by Pulsed Electron Beam,
J. Phys. Soc. Jpn., **39** (1975) 999-1003
T. Karasawa and M. Hirai.
46. Intrinsic Luminescence in KI and RbI under Two-Photon Excitation,
J. Phys. Soc. Jpn., **39** (1975) 1498-1505
T. Yoshinari and M. Hirai.
47. Effect of Br^- Ions on the F-Center Formation in KCl Crystals under u. v.
Light Irradiation,
Solid State Commun., **17** (1975) 1409-1413
M. Maki, N. Nagasawa and M. Hirai.
48. Intrinsic Luminescence in KBr Crystals between 1.8K and 80K,
J. Phys. Soc. Jpn., **40** (1976) 128-133
T. Karasawa and M. Hirai.
49. Relaxation Process of Excitons in KI,
J. Phys. Soc. Jpn., **40** (1976) 755-760
T. Karasawa and M. Hirai.

50. F Center Formation in KCl and KBr Crystals below 4.2K,
J. Phys. Soc. Jpn., **40** (1976) 769-775
T. Karasawa and M. Hirai.
51. Formation of Self Trapped Excitons and F Centers in Picosecond Range in KI Crystals,
J. Phys. Soc. Jpn., **43** (1977) 1679-1685
Y. Suzuki and M. Hirai.
52. F-H Center Formation by the Optical Conversion in Self Trapped Excitons in KCl Crystal,
J. Phys. Soc. Jpn., **45** (1978) 936-943
T. Yoshinari, H. Iwano and M. Hirai.
53. Luminescence and Color Center Formation by the Optical Conversion of STE in KBr and NaCl,
J. Phys. Soc. Jpn., **45** (1978) 1926-1932
T. Yoshinari, H. Iwano and M. Hirai.
54. Relaxation of 2p Excitons and F Center Formation in Picosecond Range in RbBr, RbI and KBr,
J. Phys. Soc. Jpn., **47** (1979) 184-192
Y. Suzuki, M. Okumura and M. Hirai.
55. Growth Time of the π Emission in KI in Picosecond Range,
J. Phys. Soc. Jpn., **48** (1980) 1783-1784
Y. Suzuki, H. Ohtani and M. Hirai.
56. Formation Time of STE at $^1\Sigma_u^+$ State in RbBr and KI under Pulsed Electron Beam in Picosecond Range,
J. Phys. Soc. Jpn., **49** (1980) 207-212
Y. Suzuki, S. Wakita, H. Ohtani, S. Tagawa and M. Hirai.
57. Polarization of the Absorption Bands Due to the STE in NaCl, KCl, KBr and RbBr Crystals,
J. Phys. Soc. Jpn., **49** (1980) 1372-1378
S. Wakita, T. Okuno and M. Hirai.
58. Formation of F Centers and STE's in RbBr, RbI and KBr in Picosecond Range,
Journal de Physique, **41** (1980) C-6 305-307
M. Hirai, Y. Suzuki and M. Okumura.

59. Luminescence Quenching due to the Dynamical Nonradiative Transition of F Center in KI Crystal,
J. Phys. Soc. Jpn., **50** (1981) 2781-2782
S. Wakita, Y. Suzuki and M. Hirai.
60. Temperature Dependence of the Lifetimes of the $^1\Sigma_u^+$ State of STE in KI, NaCl, KBr and RbBr Crystals,
J. Phys. Soc. Jpn., **50** (1981) 3378-3383
S. Wakita, Y. Suzuki, H. Ohtani, S. Tagawa and M. Hirai.
61. Self Trapping of Holes Followed by STE and F Center Formation in KI in Picosecond Range,
J. Phys. Soc. Jpn., **50** (1981) 3537-3538
Y. Suzuki, H. Ohtani, S. Takagi and M. Hirai.
62. Quenching of F Center Luminescence by Non-Radiative Processes in Potassium and Sodium Halides,
Semiconductors and Insulators, **5** (1983) 231-247
M. Hirai.
63. Picosecond Spectroscopic studies on Defect Formation in Alkali Halides,
Semiconductors and Insulators, **5** (1983) 445-455
Y. Suzuki and M. Hirai.
64. Picosecond Spectroscopy on Reverse Photoreaction from Batho- Intermediate of Bacteriorhodopsin at 6.5K,
J. Phys. Soc. Jpn., **53** (1984) 2851-2856
T. Iwasa, Y. Suzuki, T. Nakayama, F. Tokunaga and M. Hirai.
65. Photo and Thermally Induced Absorption Bands in Very Thin α -As₂S₃ Films,
J. Phys. Soc. Jpn., **53** (1984) 4009-4019
M. Hirai, Y. Suzuki and S. Takeuchi.
66. A New Luminous State of Bacteriorhodopsin,
Journal of Luminescence, **31 & 32** (1984) 899-901
M. Hirai, Y. Suzuki and T. Nakayama.
67. Transformation of Resonant Raman Scattering into Luminescence in Cd_xZn_{1-x}Te Mixed Crystals: Time-Resolved Spectroscopy,
Solid State Commun., **52** (1984) 583-587
A. Nakamura, M. Shimura, M. Hirai and S. Nakashima.

68. Picosecond Pulse Sources by Cerenkov Light Generated from Fused Silica and Water,
Jpn. J. Appl. Phys., **24** (1985) 502-505
S. Wakita, M. Washio, Y. Suzuki and M. Hirai.
69. Super Dense Kondo States in CeSb and CeBi,
Journal of Magnetism and Magnetic Materials, **47 & 48** (1985) 532-535
H. Kitazawa, I. Oguro, M. Hirai, Y. Kondo, T. Suzuki and T. Kasuya.
70. Dynamics of Localized Excitons in Mixed Semiconducting Crystals,
Journal de Physique, **C7** (1985) 179-183
A. Nakamura, M. Shimura, M. Hirai and S. Nakashima.
71. Improved Recombination Lifetime of Photo-Excited Carriers in GaAs Single Quantum Well Heterostructures Confined by GaAs/AlAs Short- Period Superlattices,
Appl. Phys. Lett., **49** (1986) 1193-1195
K. Fujiwara, A. Nakamura, Y. Tokuda, T. Nakayama and M. Hirai.
72. Dynamics of Photo-Excited Carriers Sinking into an Enlarged Well in a GaAs/AlAs Short-Period Superlattice,
Physical Review B, **34** (1986) 9019-9022
A. Nakamura, K. Fujiwara, Y. Tokuda, T. Nakayama and M. Hirai.
73. Transient Behavior of the Second-Order Optical Process in $\text{Cd}_x\text{Zn}_{1-x}\text{Te}$: Transformation from Luminescence into Raman Scattering,
Physical Review B, **35** (1987) 1281-1287
A. Nakamura, M. Shimura, M. Hirai, M. Aihara and S. Nakashima
74. Polarization Correlation of Resonant Secondary Emission from the F Center in KCl: Picosecond Time-Resolved Spectroscopy,
J. Phys. Soc. Jpn., **56** (1987) 1603-1608
A. Nakamura, T. Sano, Y. Kondo and M. Hirai.
75. F Center Formation by Photoconversion in KCl Crystals Containing S^{2-} Ions,
J. Phys. Soc. Jpn., **56** (1987) 1874-1880
K. Mito and M. Hirai.
76. Picosecond Laser-Photolysis on Photo-Induced Defect Formation Process in KI Crystal,
J. Phys. Soc. Jpn., **56** (1987) 2948-2963
M. Hirai, Y. Suzuki, H. Hattori, T. Ehara and E. Kitamura.

77. Hot Luminescence and Non-Radiative Transition of F Centers in KCl and NaCl Crystals,
Journal of Luminescence, **38** (1987) 164-167
Y. Kondo, T. Noto, S. Sano, M. Hirai and A. Nakamura.
78. Time Resolved Spectroscopy in Nano- and Picosecond Ranges on the F Center Formation Process in KI Crystals,
Journal of Luminescence, **38** (1987) 178-180
Y. Suzuki, E. Kitamura and M. Hirai.
79. UV Absorption Shape between 3.5eV and 5.6eV in Very Thin a-As₂S₃ Films at 80K,
J. Non-Cryst. Solids, **95 & 96** (1987) 749-756
H. Hoshi, Y. Suzuki and M. Hirai.
80. Photo-Induced Absorption Change in a-As₂S₃ Films at 80K,
J. Non-Cryst. Solids, **95 & 96** (1987) 757-764
H. Eguchi, Y. Suzuki and M. Hirai.
81. Double Laser Excitation Spectroscopy on Picosecond Photo-Chemical Reactions in Alkali Halide Crystals,
Chem. Phys., **48** (1988) 274-276
Y. Suzuki, H. Abe and M. Hirai.
82. Picosecond Studies of Cascade Relaxation Processes Among the Stacking-Fault Exciton States in Layered BiI₃ Single Crystals,
Journal of Luminescence, **42** (1989) 357-363
I. Akai, T. Karasawa, Y. Kaifu, A. Nakamura, M. Shimura and M. Hirai.
83. Picosecond Defect Formation by Optical Conversion from Self-Trapped Excitons in Alkali Halide Crystals,
Radiat. Phys. Chem., **34** (1989) 625-628
Y. Suzuki, H. Abe and M. Hirai.
84. Transformation of the Optical Extinction Spectrum of KI Film Due to Surface Scattering,
J. Phys. Soc. Jpn., **59** (1990) 326-330
K. Edamatsu, N. Kidera and M. Hirai.
85. Defect formation in Alkali Halides,
Reviews of Solid State Science, **4** (1990) 431-444
M. Hirai.

86. F Centers Induced by Picosecond Optical Excitation of Self- Trapped Excitons in Alkali Halide Crystals,
Reviews of Solid State Science, **4** (1990) 459-465
Y. Suzuki, H. Abe, K. Tasaki and M. Hirai.
87. Spectral Variation of Amorphous As_2S_3 after the Initial Annealing and Photodarkening,
J. Phys. Soc. Jpn., **59** (1990) 4542-4546
H. Eguchi and M. Hirai.
88. Conversion Ratio to F-H Center Pairs from Self-Trapped Excitons in Alkali Chloride Crystals,
Radiation Effects and Defects in Solids, **119-121** (1991) 815-820
Y. Suzuki, H. Abe, K. Tasaki and M. Hirai.
89. Formation of Transient Pairs of F and H Centers at Next Nearest Neighbor Sites in Alkali Chloride Crystals Studied by the Time Delayed Double Excitation Spectroscopy in Picosecond Range,
Radiation Effects and Defects in Solids, **119-121** (1991) 843-848
Y. Suzuki, H. Abe, K. Tasaki and M. Hirai.
90. Transient Absorption Due to the Self-Trapped Exciton Localized at an Iodine Dimer in KCl:I ,
Physical Review Letters, **67** (1991) 3283-3285
S. Hirota, K. Edamatsu and M. Hirai.
91. Optical and Thermal Properties of Sulfur-Perturbed F_2^+ Centers in NaCl as the Laser Active Center,
Jpn. J. Appl. Phys., **31** (1992) 809-815
Y. Suzuki, T. Saitoh, K. Ozawa, Y. Kondo and M. Hirai.
92. Mixed Crystallization Effects on the Optical Properties of Multilayer Alkali Halide Films,
J. Phys. Soc. Jpn., **61** (1992) 2543-2549
K. Edamatsu, S. Hirota and M. Hirai.
93. Picosecond Optical Conversion from Self-Trapped Exciton to F-H Center Pairs in Alkali Chloride Crystals
J. Phys. Soc. Jpn., **61** (1992) 2964-2982
Y. Suzuki, H. Abe and M. Hirai.

94. Transient F-H Center Pairs Produced from Self-Trapped Excitons at the Lowest Triplet State in Alkali Chloride Crystals
J. Phys. Soc. Jpn., **61** (1992) 2983-2991
Y. Suzuki, H. Abe and M. Hirai.
95. Thermal Restructuring of $F_2^+:S^{--}$ and $F_2^+:O^{--}$ Centers in NaCl Crystals between 205 and 220K
J. Phys. Soc. Jpn., **61** (1992) 2983-2991
Y. Suzuki, H. Abe and M. Hirai.

国際会議 Proceedings

1. Exciton Experiments in Alkali Halides Containing U Centers,
Proceedings of the International Conference on Semiconductor Physics, Prague,
(1960) 758-760,
M. Ueta, M. Hirai and T. Ishii.
2. Thermal Growth of M Centers in Additively Colored KCl Crystal, 1965
International Symposium of Color Centers in Alkali Halides, Urbana Illinois,
1965,
M. Hirai and A.B. Scott.
3. Vibrational Frequencies of Lattice Influencing the M and F Centers in KCl and
KBr Crystals,
1968 International Symposium of Color Centers in Alkali Halides, Rome, 1968,
M. Hirai and K. Hashizume.
4. Absolute Quantum Yield of the M-Center Luminescence in KCl Crystal,
1968 International Symposium of Color Centers in Alkali Halides, Rome, 1968,
M. Hirai and K. Hashizume.
5. Color Center Study by Pulsed Electron Beam,
1968 International Symposium of Color Centers in Alkali Halides,
Rome, 1968,
M. Ueta, Y. Kondo, M. Hirai and T. Yoshinari.
6. New Absorption Bands, M_L , Associated with M Centers in the L Band Region
of KCl and KBr Crystals,
1968 International Symposium of Color Centers in Alkali Halides,
Rome, 1968,
M.Hirai and K. Hashizume.
7. Intrinsic Luminescence in KBr:KI Solid Solutions under X-ray and Ultraviolet
Irradiation near Liquid Helium Temperature,
1971 International Conference on Color Centers in Ionic Crystals,
Reading, UK, 1971,
M.Hirai and S.Wakita.
8. Statistical Study of M Centre Formation and Destruction in KCl Crystals,
1971 International Conference on Color Centers in Ionic Crystals,
Reading, UK, 1971,
M.Hirai and T.Matsuyama.

9. Transient Formation and Bleaching of Colour Centres in KCl, KBr KI and NaCl under Pulsed Electron Beam at 15K,
1971 International Conference on Color Centers in Ionic Crystals,
Reading, UK, 1971,
M.Hirai, Y.Kondo, T.Yoshinari and M.Ueta.
10. Influence of Impurities on Colour Centre Formation in KCl Crystals under X-Irradiation near 10K,
1971 International Conference on Color Centers in Ionic Crystals,
Reading, UK, 1971,
M.Hirai and Y.Kondo.
11. Thermal Formation of F_2^+ Centres in KCl Crystals,
1971 International Conference on Color Centers in Ionic Crystals,
Reading, UK, 1971,
M.Hirai and T.Matsuyama.
12. Color Center Formation Yield in KCl and KBr by Pulsed Electron Beam between 10 and 80K,
1973 Europhysics Topical Conference on Lattice Defects in Ionic Crystals,
Marseille, France, 1973,
M.Hirai and T.Karasawa.
13. Intrinsic Luminescence in KI under Two-Photon Excitation,
1974 International Conference on Color Centers in Ionic Crystals,
Sendai, Japan, 1974,
T.Yoshinari and M.Hirai.
14. Mechanism of Defect Formation in Alkali Halides,
1974 International Conference on Color Centers in Ionic Crystals,
Sendai, Japan, 1974,
M.Hirai.
15. The Correlation between the Intrinsic Luminescence and the F Center Formation in KCl-KI and KBr-KI Crystals,
1974 International Conference on Color Centers in Ionic Crystals,
Sendai, Japan, 1974,
S.Wakita, T.Katsuyama and M.Hirai.
16. F Center Formation in KCl Crystals under UV Excitation,
1974 International Conference on Color Centers in Ionic Crystals,
Sendai, Japan, 1974,
M.Maki, N.Nagasawa and M.Hirai.

17. F Center Formation Yield in KCl and KBr below 4.2K,
1974 International Conference on Color Centers in Ionic Crystals,
Sendai, Japan, 1974,
T.Karasawa and M.Hirai.
18. The Complex H Center in KCl-KI Crystals ,
1974 International Conference on Color Centers in Ionic Crystals,
Sendai, Japan, 1974,
T.Katsuyama, S.Wakita and M.Hirai.
19. Intrinsic Luminescence in KI under Two Photon Excitation,
1974 The Second Conference of the Condensed Matter Division of the European Physical Society on Dielectrics and Phonons,
Budapest, Hungary 1974,
M.Hirai and T.Karasawa.
20. F Center Formation in KCl Crystals,
1974 The Second Conference of the Condensed Matter Division of the European Physical Society on Dielectrics and Phonons,
Budapest, Hungary 1974,
M.Maki, N.Nagasawa, T.Karasawa and M.Hirai.
21. F Center Formation in Picosecond Range in KI,
1977 International Conference on Defects in Insulating Crystals,
Gatlinburg, U.S.A., 1977,
Y.Suzuki and M.Hirai.
22. Formation of Self Trapped Exciton in Picosecond Range in KI,
1977 International Conference on Defects in Insulating Crystals,
Gatlinburg, U.S.A., 1977,
Y.Suzuki and M.Hirai.
23. Formation of F Centers and STE's in RbBr, RbI and KBr in Picosecond Range,
1979 Third Europhysics Topical Conference on Lattice Defects in Ionic Crystals,
Canterbury, UK, 1979,
M.Hirai and T.Karasawa.

24. Formation of V_K Center Followed by STE and F Center Formation in KI Crystals in Picosecond Range,
1981 International Conference on Defects in Insulating Crystals,
Riga, USSR, 1981,
Y.Suzuki and M.Hirai.
25. Non radiative Transition in F Center in KI Crystals,
1981 International Conference on Defects in Insulating Crystals,
Riga, USSR, 1981,
S.Wakita, Y.Suzuki and M.Hirai.
26. Quenching of F Center Luminescence by Non-Radiative Processes in Potassium and sodium Halides,
The US-Japan Seminar on Recombination induced Defect Formation in Crystals,
Urbana-Champaign, U.S.A., 1982,
M.Hirai and S.Wakita.
27. Picosecond Spectroscopic Studies on Defect Formation in Alkali Halides,
The US-Japan Seminar on Recombination induced Defect Formation in Crystals,
Urbana-Champaign, U.S.A., 1982,
Y.Suzuki and M.Hirai.
28. New Absorption Bands and their Origin Created Optically or Thermally in α - As_2S_3 ,
1984 International Conference on Defects in Insulating Crystals,
Salt Lake City, U.S.A., 1984,
M.Hirai, Y.Suzuki and S.Takeuchi.
29. Photo-Calorimetric Study of Nonradiative Processes in Color Centers and Excitons,
1984 International Conference on Defects in Insulating Crystals,
Salt Lake City, U.S.A., 1984,
Y.Kondo, M.Takahashi and M.Hirai.
30. Time Resolved Spectra of F Centers and STE, and Their Formation Process in KI Crystals,
1984 International Conference on Defects in Insulating Crystals,
Salt Lake City, U.S.A., 1984,
Y.Suzuki, H.Hattori and M.Hirai.

31. Formation of Self Trapped Excitons at $^1\Sigma_u^+$ (σ_u , $2s\sigma_g$) in Alkali Halide Crystals Studied by Picosecond Excitation,
1984 International Conference on Defects in Insulating Crystals,
Salt Lake City, U.S.A., 1984,
S.Wakita, Y.Suzuki, K.Mito, M.Washio, Y.Kondo and M.Hirai.
32. Transformation of Resonant Raman Scattering into Luminescence in $\text{Cd}_x\text{Zn}_{1-x}\text{Te}$ Mixed Crystals as Observed in Time-Resolved Spectroscopy,
IXth International Conference on Raman Spectroscopy
Tokyo, Japan, 1984,
A.Nakamura, M.Shimura, M.Hirai and S.Nakashima.
33. Possibility of Disorder Phase in Langbeinite $\text{Rb}_2\text{Cd}_2(\text{SO}_4)_3$ Crystals,
IXth International Conference on Raman Spectroscopy
Tokyo, Japan, 1984,
M.Hirai and A.Nakamura.
34. Photoconversion from the $\text{S}^{--} + \text{F}^+$ Pair to the F Center in KCl Crystals,
1986 Fifth Europhysics Topical Conference on Lattice Defects in Ionic Crystals,
Madrid, Spain, 1986,
K.Mito and M.Hirai.
35. UV Absorption Shape between 3.5eV and 5.6eV in Very Thin $\alpha\text{-As}_2\text{S}_3$ Films at 80K,
The Six International Conference on the Physics of Non-Crystalline Solids,
Kyoto, Japan, 1987,
H.Hoshi, Y.Suzuki and M.Hirai,
36. Photo-Induced Absorption Change in $\alpha\text{-As}_2\text{S}_3$ Films at 80K,
The Six International Conference on the Physics of Non-Crystalline Solids,
Kyoto, Japan, 1987,
H.Eguchi, Y.Suzuki and M.Hirai.
37. Hot Luminescence and Nonradiative Transition of F Center,
6th International Conference on Dynamical Processes in Excited State of Solids,
Tsukuba, Japan, 1987,
Y.Kondo, H.Ishida, T.Noto and M.Hirai.
38. Time Resolved Spectroscopy in Nano and Picosecond Ranges on the F Center Formation Process in KI Crystals,
6th International Conference on Dynamical Processes in Excited State of Solids,
Tsukuba, Japan, 1987,
Y.Suzuki, E.Kitamura and M.Hirai.

39. Double Laser Excitation Spectroscopy on Picosecond Photochemical Reactions in Alkali Halide Crystals,
Sixth International Conference on Ultrafast Phenomena,
Kyoto, Japan, 1988,
Y.Suzuki, H.Abe and M.Hirai.
40. Relaxation of Self-Trapped Excitons in Alkali Chloride Crystals Studied by Time Delayed Double Excitation in Picosecond Range,
International Conference on Defects in Insulating Crystals,
Parma, Italy, 1988,
Y.Suzuki, H.Abe and M.Hirai.
41. Radiation-Induced Absorption Bands due to Chlorine-Related Defects in α -SiO₂,
International Conference on Defects in Insulating Crystals,
Parma, Italy, 1988,
H.Takada, Y.Suzuki, H.Kimura and M.Hirai.
42. Defect Formation in Alkali Halides,
The US-Japan Seminar on Atomic Processes Induced by Electronic Excitation in Non-Metallic Solids,
Nagoya, Japan, 1989,
M.Hirai.
43. F Centers Induced by Picosecond Optical Excitation of Self-Trapped Excitons in Alkali Halide Crystals,
The US-Japan Seminar on Atomic Processes Induced by Electronic Excitation in Non-Metallic Solids,
Nagoya, Japan, 1989,
Y.Suzuki, H.Abe, K.Tasaki and M.Hirai.
44. Conversion Ratio to F-H Center Pairs from Self-Trapped Excitons in Alkali Chloride Crystals,
1990 Sixth Europhysics Topical Conference on Lattice Defects in Ionic Materials,
Groningen, The Netherlands, 1990,
Y.Suzuki, H.Abe, K.Tasaki and M.Hirai.
45. Formation of Transient Pairs of F and H Centers at Next Nearest Neighbor and Their Formation Yield in Alkali Chloride Crystals,
1990 Sixth Europhysics Topical Conference on Lattice Defects in Ionic Materials,
Groningen, The Netherlands, 1990,
Y.Suzuki, H.Abe, K.Tasaki and M.Hirai.

46. Picosecond Relaxation of Photoexcited Ce^{3+} Ions in YAG Crystals,
International Conference on Defects in Insulating Materials,
Nordkirchen, Germany, 1992,
Y.Suzuki, T.Sakuma, Y.Satoh and M.Hirai.
47. Thermal Restructuring of $\text{F}_2^+:\text{S}^{--}$ and $\text{F}_2^+:\text{O}^{--}$ Centers in NaCl Crystals
between 205 and 220K,
International Conference on Defects in Insulating Materials,
Nordkirchen, Germany, 1992,
Jen Y.Jen, Y.Suzuki and M.Hirai.
48. Formation of F Centers from Self-Trapped Exciton in KI and RbI Crystals,
International Conference on Defects in Insulating Materials,
Nordkirchen, Germany, 1992,
Y.Suzuki, K.Tasaki and M.Hirai.
49. Transient Absorption due to The On-Center Type Self-Trapped Excitons in
Alkali Halides,
International Conference on Defects in Insulating Materials,
Nordkirchen, Germany, 1992,
K.Edamatsu, S.Hirota, M.Sumita and M.Hirai.

解 説 書

1. アルカリハライドのカラーセンターの生成機構
応用物理 **41** (1972) **7** 号 666-683
平井正光
2. 固体の光物性におけるナノ・ピコ秒現象：格子欠陥生成
化学総説 No. **24** (1979) 163-180
平井正光
3. イオン結晶における欠陥生成のダイナミクス
月刊フィジクス **5** (1984) 858-864
平井正光
4. アルカリハライド結晶中の超高速緩和
レーザー研究 **15** (1987) 930-940
平井正光
5. Formation of Color Centers in Anion-Doped Crystals.
J. Phys. Chem. Solids, **51** (1990) 737-745
M. Hirai

著 書

1. Chapter 4 *Time-Resolved Studies of Photochemistry in Alkali Halides in Defect Processes Induced by Electronic Excitation in Insulators*
in *Direction in Condensed Matter Physics Vol 5*
Edited by Noriaki Itoh, World Scientific, Singapore (1989).
2. Chapter 13 *Early Processes in Crystalline Alkali Halides*
in *Pulse radiolysis*
Edited by Yoneho Tabata, CRC Press, Boston (1990).

